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## NEW SPECIES OF SERICA (SCARABAEIDÆ). V.

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In order to somewhat facilitate the recognition of the new species here described it seems desirable to characterize and figure six of the closely allied, described species, *sericea*, *tristis*, *parallela*, *elongatula*, *mixta* and *curvata*.

**Serica sericea** Illiger.

*Melolontha sericea* Illiger, Olivier's Entomologie, ii, part 5, p. 75, footnote A (1802).

♂. Length, 9 mm.; width, 5.25 mm. Color deep chestnut, surface velvety and opaque but in shifting lights showing a very brilliant metallic sheen of rainbow colors.

The length may vary from 7.5–10.5 mm., the color from light chestnut to nearly black and the iridescence from a scarcely discernible amount to a sheen of much brilliance, the color and iridescence apparently depending upon the maturity and condition of the specimen.

Clypeus evenly but very feebly tumid, most evidently so just below the center; anterior reflexed margin clearly defined at the base by a transverse line, but feebly elevated, reaching only the height of the slight tumidity above it and forming an angle of about 120 degrees with its anterior face upon which are borne a few erect, brown setæ; viewed perpendicularly the anterior margin feebly, to moderately, curved at the center and very broadly and evenly rounded to the sides where it joins the lateral margins, viewed at an angle from above nearly straight, or but slightly more prominent at the center; lateral margins feebly elevated and almost continuous with the anterior margin, their union marked by a nearly obsolete angulation; upper half to two thirds of clypeus bare; punctures of only moderate size, rather evenly placed, and separated by scarcely half their own diameters; clypeal suture obtusely angled at the middle, fine, and not very distinct, but with a row of eight erect setæ, four on each side, immediately above it on the anterior margin of the front. Front with punctures separated by one to two diameters, and occipital area impunctate. Antennal club well developed, apparently exceeding the combined length of the preceding segments. Measurements of head: diameter of head through eyes, 23.5;<sup>1</sup> distance between inner eye margins, 15; length of head on median line, 17; extreme width of clypeus in front of incisure, 12; antennal club, 11.5; dorso-ventral diameter of eye, 8.

Pronotum only slightly convex, posterior angles distinct, nearly rectangular, sides only moderately curved, a little more arcuate and convergent

<sup>1</sup> Measurements in tenths of a millimeter.

in the anterior third, with a distinct margin and 8 or 9 erect, brown setæ; anterior margin of pronotum less distinct than the lateral margins and with smaller setæ which become obsolete toward the center; surface of pronotum finely and rather evenly punctured, the punctures shining and separated by one to three times their own diameters.

Measurements of pronotum: width through posterior angles, 40; width through anterior angles, 24; length on median line, 20.

Elytra with moderately impressed, usually line-like sulci, each with one to three confused rows of small shining punctures; interspaces of elytra evenly and moderately convex, sparsely and irregularly punctured, length 70, width 52.

Metasternum and posterior coxal plates nearly bare, with relatively fine punctures separated by about one to two diameters. Hind femora rather finely and sparsely punctured, but with two regular and nearly parallel rows of rather strong, setigerous punctures with about eight setæ to the row. Abdominal sternites finely and rather closely punctured and with well-developed rows of ambulatorial setæ. Pygidium similarly punctured, usually showing a slightly elevated, median, longitudinal line.

The genital armature of the male (Pl. XI) practically symmetrical; length 2.5 mm.

♀. Differs from the male in having the head and pronotum rather more coarsely punctured, shining, not opaque and velvety, and usually without any iridescent luster. The antennal clubs are distinctly smaller than in the male, measuring 8 instead of 11.5.

The description and drawings are based upon a male and female labeled "Bergen county, N. J., May 19, 1918, Under leaves (E. D. Quirsfeld)." On the assumption that Illiger's type (1802) is probably no longer in existence, these specimens are being labeled as neotypes.

Specimens examined: 175 ♂, 195 ♀.

Maine: Old Orchard, 1 ♀; Paris, 1 ♂.

New Hampshire: Hookset, 1 ♂; Manchester, 2 ♀.

Vermont: Bennington Co., 2 ♀.

Massachusetts: "Mass.," 2 ♂, 4 ♀; Cambridge, 1 ♂; Fall River, 1 ♂; Framingham, 5 ♂, 1 ♀; Ipswich, 1 ♀; Lowell, 3 ♂, 2 ♀; Natick, 1 ♀; Sherborn, 1 ♂, 2 ♀; Stoneham, 2 ♂; Swansea, 1 ♂; Tyngsboro, 5 ♂, 5 ♀. Connecticut: Colebrook, 1 ♂; Cornwall, 1 ♂; New Haven, 1 ♂, 2 ♀; Stamford, 2 ♀.

New York: "New York," 2 ♂, 4 ♀; Buffalo, 1 ♀; Ithaca, 3 ♀; Nyack, 1 ♀; Wilmington, 1 ♂, 1 ♀.

Pennsylvania: "Pa.," 1 ♂; Allentown, 1 ♂; Brandtsville, 1 ♂; Enola, 2 ♂; Harrisburg, 1 ♀; Heckton Mills, 2 ♀; Linglestown, 1 ♂; Rockville, 4 ♂; S. College, 1 ♂; Wilmerding, 1 ♀.

New Jersey: Bergen Co., 3 ♂, 5 ♀; Jamesburg, 1 ♀; Riverton, 2 ♂, 1 ♀; South Orange, 1 ♀; Spotswood, 1 ♀.

Virginia: Charlottesville, 1 ♂, 1 ♀.

Ohio: Cincinnati, 1 ♂.

Michigan: "Mich.," 2 ♂, 5 ♀; Berrien Co., 1 ♂, 2 ♀; Douglas Lake, Cheboygan Co., 3 ♀; South Haven, 2 ♂, 2 ♀.

Wisconsin: "Wisconsin," 3 ♂, 3 ♀.

Illinois: "Ill.," 4 ♂, 2 ♀; "Northern Illinois," 3 ♂, 5 ♀; "Southern Illinois," 1 ♀; Aurora, 1 ♂, 2 ♀; Chicago, 5 ♂; De Kalb Co., 1 ♂; Havana, 1 ♂; Pekin, 1 ♀; Sterling, 2 ♂, 4 ♀; Topeka, 1 ♂.

Indiana: Clarke Junction, 1 ♀; Crawford Co., 2 ♀; Fountain Co., 1 ♀; Lake Co., 1 ♀; Millers, 10 ♂, 7 ♀; Pine, 1 ♂; Posey Co., 2 ♂; Putnam Co., 1 ♂; Starke Co., 1 ♀.

North Carolina: "N. C.," 3 ♀; Black Mountains, 2 ♂, 4 ♀; Highlands, 2 ♀.

Florida: "Fla.," 1 ♀; Lake City, 1 ♀.

Missouri: "Mo.," 1 ♂.

Iowa: De Witt, 1 ♂; Iowa City, 1 ♂, 1 ♀; Spirit Lake, 1 ♂; Waukon, 1 ♂, 1 ♀; West Lake Okoboji, Dickenson Co., 1 ♀.

South Dakota: Englewood, 1 ♀.

Nebraska: Ashland, 1 ♀; Halsey, 1 ♂; Hooper, 1 ♂, 2 ♀; Lincoln, 1 ♂, 1 ♀; Nebraska City, 7 ♂, 10 ♀; Omaha, 4 ♂, 1 ♀; Sarpy Co., 3 ♂, 3 ♀; South Bend, 2 ♀; Sioux Co., 3 ♂, 5 ♀; West Point, 1 ♂, 2 ♀.

Kansas: "Kansas," 1 ♂; Medora, 1 ♂, 1 ♀; Riley Co., 24 ♂, 19 ♀.

Utah: "Utah," 1 ♂.

Montana: Bridger Mountains, 1 ♂; Gallatin Co., 2 ♂; Middle Creek Canyon, 2 ♂.

Idaho: Kendrick, 1 ♂; Maiden, 1 ♂.

Washington: "Eastern Washington," 1 ♂; Spokane, 2 ♂, 7 ♀.

#### CANADA:

Ontario: "Eastern Ontario," 1 ♀; "Western Ontario," 1 ♀; Hastings Co., 1 ♂; Ottawa, 5 ♂, 2 ♀; Point Pelee, 1 ♀; Toronto, 2 ♂, 2 ♀; Trenton, 3 ♂.

Quebec: Ft. Coulonge, 1 ♀; Lanoraie, 3 ♂, 1 ♀; Montreal, 2 ♀; Three Rivers, 2 ♂, 1 ♀.

Manitoba: Aweme, 1 ♂, 2 ♀; Onah, 2 ♂, 11 ♀; Thornhill, 1 ♀; Winnipeg, 4 ♂, 2 ♀.

British Columbia: "British Columbia," 1 ♂, 1 ♀; Cawston, 1 ♀; Vernon, 2 ♀.

North West Territory: "North West Territory," 1 ♀.

#### *Serica tristis* Le Conte.

*Serica tristis* Le Conte, Agassiz Lake Superior, Boston, iv, p. 226 (1850).

*Serica tristis* Le Conte, Journ. Acad. Nat. Sci. Phila., Ser. 2, iii, p. 275 (1856).

*Serica tristis* Blatchley, Coleoptera of Indiana, pp. 956, 958 (1910).

♂. Length, 7-8.5 mm.; width, 4.5-5 mm. Color varying from chestnut to nearly black, depending largely upon the degree of maturity and condition of the specimen, surface moderately shining, distinctly less velvety than in *sericea*, but with a similar though less intense, metallic, iridescent sheen.

Clypeus resembling that of *sericea*, but differing in having the anterior margin evidently less strongly reflexed, not more elevated than the lateral margins; anterior margin viewed at an angle from above, broadly curved at the center and with the corners distinctly more prominent and less rounding than in *sericea*; clypeus nearly devoid of erect hairs and with the puncturation averaging stronger than in *sericea*, the clypeal suture a little less distinct and with only two indistinct setigerous punctures at the sides. Measurements of head: diameter of head through eyes, 22; distance between inner eye margins, 15; length of head on median line, 18; extreme width of clypeus in front of incisure, 12; antennal club, 9; dorso-ventral diameter of eye, 7.

Pronotum closely resembling that of *sericea*, but a little more strongly punctured, and with the marginal setæ less well developed. Measurements of pronotum: width through posterior angles, 36; width through anterior angles, 24; length on median line, 20.

Elytra with stronger and wider sulci than in *sericea*, and with two to three much confused rows of densely placed, moderately strong punctures; interspaces relatively narrower and each with an irregular row of strong punctures; length, 57; width, 45.

Metasternum and posterior coxal plates a little more strongly punctured than in *sericea*; hind femora also more coarsely punctured, but with the two rows of setæ less evident and well developed; abdominal sternites with fine, shallow punctures, and only moderately well-developed rows of ambulatorial setæ; pygidium with stronger punctures than the sternites, and showing traces, at least in the apical half, of an elevated, median, longitudinal line.

The genital armature of the male is a counterpart of that of *sericea* and therefore does not require a separate figure.

♀. Differs from the male in having a slightly more shining and less iridescent pronotum, but the difference is not conspicuous in *sericea*, and in having much shorter antennal clubs, 4.7 instead of 9 as in the male.

Specimens examined: 102 ♂, 78 ♀.

Maine: Biddeford, 1 ♂; Machias, 1 ♀; Monmouth, 6 ♂, 5 ♀; Paris, 11 ♂, 15 ♀; Portland, 3 ♂; Wales, 10 ♂, 13 ♀.

New Hampshire: "N. H.," 1 ♂, 1 ♀; Bretton Woods, 2 ♂, 3 ♀; Hanover, 1 ♂; Hookset, 1 ♀; Intervale, 1 ♀; Mt. Moosilauke, 1 ♂, 2 ♀; Mt. Washington, 4 ♂, 1 ♀; N. Conway, 4 ♂, 2 ♀; Three Mile Island, 9 ♂, 4 ♀.

Massachusetts: "Mass.," 3 ♂; Edgartown, 1 ♂, 1 ♀; Framingham, 3 ♀; Tyngsboro, 1 ♂; Wellesley, 4 ♂, 1 ♀.

New York: Ithaca, 1 ♂; Peru, 4 ♂, 1 ♀.

Wisconsin: Bayfield, 1 ♀.

Illinois: Chicago, 1 ♂.

Minnesota: Duluth, 1 ♀.

## CANADA:

Ontario: "E. Ontario," 1 ♂; Hymers, 1 ♂; "Hudson Bay," 1 ♂; Nepigon, 3 ♂, 1 ♀; Ottawa, 1 ♂, 1 ♀.

New Brunswick: Chaleur Bay, 1 ♂; St. Andrews, 1 ♀; St. Stephens, 1 ♂.

Quebec: Charlevoix Co., 1 ♀; Fort Coulonge, 3 ♂, 2 ♀; Three Rivers, 4 ♂, 2 ♀.

Nova Scotia: Aylesford, 1 ♀; Kentville, 2 ♂, 2 ♀; Middleton, 1 ♀; Round Hill, 2 ♂; Truro, 9 ♂, 7 ♀.

Manitoba: Aweme, 1 ♂; Onah, 1 ♀; Stonewall, 1 ♂; Winnipeg, 1 ♂, 1 ♀.

Magdalen Islands: 1 ♂.

The absence of any differential characters in the genital armatures of *tristis* and *sericea* might lead one at first to suppose that they were not specifically distinct. However, the two forms do not intergrade, though occupying overlapping, but not coextensive, ranges. We should therefore regard them as quite distinct species.

***Serica apatela* new species.**

♂. Length, 8 mm.; width, 5 mm. Color brown (dark bay), surface less strongly opaque and velvety than in *sericea*, but with a well-developed and brilliant sheen of colors. In other characters greatly resembling *sericea*, but differing from that species in having relatively shorter and less parallel-sided elytra, and in having the sparse, erect clypeal hairs well distributed instead of confined to the anterior portion of the clypeus as in *sericea*.

The genital armature resembles the type seen in *sericea* and *tristis*, but is quite distinct in the possession of the thorn-like tooth on the somewhat modified claspers (Pl. XII).

♀. Differs from the ♂ in having the head and pronotum polished and shining, without any iridescent luster, and in having a small antennal club (6.5 instead of 12), thus showing a greater difference in the size of the antennal clubs than was the case in *sericea*.

Type: ♂. Tumblin Gap, Alabama, June 3 to 8, 1911 (H. P. Loding).

Allotype: ♀. Same data.

Paratype: 1 ♀. Monte Sano, Madison Co., Alabama, June 9 to 11, 1911 (H. P. Loding).

***Serica parallela* Casey.**

*Serica parallela* Casey, Contributions to Coleopterology of N. A., ii, p. 176 (1884).

*Serica parallela* Brenske, Berl. Ent. Zeitschr., xlvii, p. 36 (1902).

♂. Length, 7.5-8.5 mm.; width, 4.2-4.8 mm. Color varying through the shades mahogany red, bay and chestnut, surface velvety and opaque, with only a slight iridescence observable when viewed at an oblique angle in good light.

Clypeus plane, or feebly tumid at the middle of its apical third; ante-

rior margin abruptly but narrowly reflexed, continuous with the lateral margins which are as strongly, but less suddenly elevated; lateral incisures obsolete but the point of union between the apical and lateral reflexed margins slightly marked by the depressed line defining the base of the apical margin; apical margin viewed perpendicularly very feebly curved, viewed at an angle from above practically straight; surface of clypeus rather closely punctate, sometimes with a mixture of coarse and fine punctures, the rather numerous coarse punctures bearing erect, yellow hairs. Front sparsely covered with small, feeble, shining punctures, and with a row of small setigerous punctures following the inner eye margins and the nearly obsolete clypeal suture. Measurements of head: diameter of head through eyes, 23; distance between inner eye margins, 13; length of head on median line, 17; extreme width of anterior reflexed margin, 10.5; antennal club, 10; dorso-ventral diameter of eye, 9.

Pronotum rather evenly covered with small, shallow, shining punctures, separated by one to three times their own diameter; mid-lateral piceous spot distinct. Measurements of pronotum: width through posterior angles, 34; width through anterior angles, 22; length on median line, 20.

Elytra sculptured much as in *sericea*, but usually with somewhat less sharply lined sulci, and finer punctures arranged in two to three much confused rows; length, 55; width, 44.

Metasternum, posterior coxal plates and abdominal sternites closely resembling those of *sericea*.

The genital armature of the male (Pl. XIII) differs decidedly from that of *sericea* and *tristis*; length, 2.2 mm.

♀. Differs from the male in its much shorter antennal club (6.5 instead of 10) more convex under line of abdomen, and larger and less emarginate last ventral segment.

Specimens examined:

Massachusetts: Fall River, 2 ♂, 2 ♀; Framingham, 14 ♂, 13 ♀; Ipswich, 1 ♀; Lynn, 1 ♂; Martha's Vineyard, 1 ♂; Natick, 1 ♂; Sherborn, 1 ♀; Springfield, 1 ♂; Wareham, 1 ♂; Tyngsboro, 7 ♂, 6 ♀.

New York: Bronx Park, 3 ♀; Long Island, 1 ♂; Staten Island, 1 ♂.

Pennsylvania: "Pa." 1 ♀; Pittsburgh, 1 ♀; Rockville, 1 ♂.

New Jersey: Bergen Co., 1 ♂, 2 ♀; Fort Lee District, 1 ♂; Jamesburg, 1 ♂, 1 ♀; Lahaway, Ocean Co., 1 ♂; Riverton, 3 ♂, 4 ♀.

Virginia: "Virginia," 1 ♂; Charlottesville, 2 ♀.

Michigan: Douglas Lake, Cheboygan Co., 2 ♀; Harris Co., 1 ♀.

Wisconsin: "Wisc.," 1 ♂.

Illinois: "Ill.," 1 ♂; "Northern Illinois," 4 ♂; Chicago, 1 ♂.

Indiana: Millers, 1 ♂, 2 ♀.

North Carolina: "N. C.," 1 ♂; Raleigh, 3 ♂.

Georgia: Clayton, 1 ♂.

## CANADA:

Ontario: Jubilee Point, 1 ♂.

Quebec: Three Rivers, 1 ♂.

*Parallela* is easily separable from *sericea* and *tristis* by its lighter, more rufous color; greatly reduced iridescence; greater extent and prominence of erect clypeal hairs; relatively longer and narrower pronotum, showing the mid-lateral piceous spot and the same type of dull, velvety surface in both sexes.

***Serica mystaca* new species.**

This species so closely resembles *parallela* Casey that it can be separated from it only with difficulty, if at all, except by the examination of the male genital armature. When compared in series with *parallela* the following average differences seem to obtain: *mystaca* is very slightly larger and more robust in form, darker in color, often more distinctly iridescent (sometimes even approaching *sericea* in this character), and has somewhat coarser, longer and more closely placed clypeal hairs, the clypeus is slightly wider anteriorly, with the corners more broadly rounded and the anterior reflexed margin more distinctly curved medially when viewed perpendicularly.

The genital armature of the male shows rather more than the usual amount of variation. In fact no two of the twelve armatures examined are exactly alike. Sometimes the serrated angulation of the claspers is more strongly developed (New York and Pennsylvania) than in the type as here illustrated (Pl. XIV). From this condition the angulation decreases in degree until it is nearly or quite obsolete (North Carolina and Nebraska). When viewed from the end the median arcuation of the claspers varies considerably, and when viewed from the side the ventral prominence of the stalk just below the claspers also varies somewhat in position and strength, but is always rather well developed. The tips of the claspers are always strongly flexed outwardly. Length of armature, 2.5 mm.

♀. Differs from the male by its distinctly smaller antennal club, 7.7 instead of 12, and somewhat smaller eyes, 8.2 instead of 9.

Type: ♂. New Haven, Connecticut, April 20, 1911 (Champlain).

Allotype: ♀. New Haven, Conn., Apr. 21, 1911 (Champlain).

Paratypes: 16 ♂, 8 ♀.

Massachusetts: Cohasset, 1 ♂.

Rhode Island: "R. I.," 1 ♂.

Connecticut: "Conn.," 1 ♀.

New York: Bronx, 1 ♂; Hudson, 1 ♂.

Pennsylvania: Harrisburg, 1 ♂; Jeannette, 1 ♂.

New Jersey: Snake Hill, 1 ♀.

Illinois: "Ill.," 1 ♀; "N. Ill.," 1 ♂; Carbondale, 1 ♂; Ozark, 1 ♂.

Indiana: Posey Co., 1 ♂.

North Carolina: "N. C.," 1 ♂.



South Carolina: "S. C.," 1 ♀.

Alabama: Mobile, 1 ♀.

Louisiana: Vowell's Mill, 2 ♀.

Iowa: Decorah, 1 ♂, 1 ♀; Iowa City, 1 ♂; Unionville, 1 ♂.

Nebraska: Nebraska City, 1 ♂.

Arizona: "Ariz.," 1 ♂.

**Serica aspera** new species.

Like the preceding species *aspera* bears a remarkable resemblance to *parallela*. It averages slightly smaller, and the antennal clubs are distinctly longer, measuring 12 instead of 10 as in *parallela*. By the characters shown in the male genital armature (Pl. XV) the species can be readily separated from *mystaca* and *parallela*, but without the aid of these characters its certain identification must be considered open to question.

Type: ♂. Southern Pines, North Carolina, April 28, 1914 (A. H. Manee).

Allotype: ♀. Southern Pines, North Carolina (A. H. Manee).

Paratypes: 5 ♂ and 5 ♀.

North Carolina: Southern Pines, 2 ♂, 3 ♀.

South Carolina: "S. C.," 1 ♀; Camden, 1 ♂.

Georgia: "Georgia," 1 ♂.

Florida: Marion Co., 1 ♂.

Alabama: Mobile, 1 ♀.

**Serica delicata** new species.

♂. Length, 7.5 mm.; width, 4 mm. Color amber brown, surface opaque and only slightly iridescent.

Clypeus broadly and very feebly convex in the apical two thirds, apical and lateral margins suddenly, moderately elevated, clypeal notch obsolete, but its position indicated by a slight angulation of the elevated rim at the point of juncture of its apical and lateral parts, apical margin viewed perpendicularly, evenly and moderately curved or bent, viewed at an angle from above, feebly arcuate; surface of clypeus evenly and closely covered with small punctures, separated by a little less than their own diameters. Front a little less closely punctured. Eyes and antennal clubs relatively large. Measurements of head: diameter through eyes, 22; distance between inner eye margins, 11; length of head on median line, 15; extreme width of anterior reflexed margin, 9; antennal club, 12; dorso-ventral diameter of eye, 9.

Pronotum only feebly convex, sides nearly straight and but slightly convergent anteriorly, and showing, as is usual with the pallid species, a small, mid-lateral, piceous spot; punctures small, evenly and closely placed, separated on the average by about their own diameters. Measurements of pronotum: width through posterior angles, 32; width through anterior angles, 23; length on median line, 19.

Elytra with distinct line-like striae, each stria with a regular row of small

punctures separated by about twice their own diameters, but the distinctness of the rows of stria punctures somewhat obscured by irregularly spaced, adjacent punctures; length, 5.5; width, 40.

Beneath opaque, practically bare, metasternum and posterior coxal plates with moderately strong punctures, separated by about their own diameters or slightly more; abdominal sternites, except the last, with much finer punctures, but with the single rows of ambulatorial setæ fairly well developed.

Genital armature of male (Pl. XVI) symmetrical and somewhat resembling that of *sericea*; length, 2.7 mm.

♀. Differs from the male by its much smaller antennal clubs, 6.5 instead of 12, and smaller eyes, 7.7 instead of 9.

Type: ♂. Florida.

Allotype: ♀. Florida (Horn Collection).

Paratypes: 4 ♂, 2 ♀.

Florida: "Fla.," 4 ♂; Green Cove Spring, 1 ♀; New River, 1 ♀.

### ***Serica tantula* new species.**

This species bears a remarkable resemblance to *delicata* in size, color, luster and structure. Although only a single specimen is at hand the writer would judge the following slight differences to be specific: eyes smaller, 7.6 instead of 9; antennal club slightly shorter, 10.6 instead of 12; elytral striæ less sharply defined or line-like and with their punctures irregularly arranged.

Genital armature of the male (Pl. XVII) with the claspers radically different in size and shape from those in the apparently related species, *delicata* and *pusilla*.

Type: ♂. Lake Worth Florida (L. B. Parker), 1889.

### ***Serica pusilla* new species.**

Probably recognizable with certainty from the two preceding species only by the form of the male genital armature (Pl. XVIII). The eyes and antennal clubs are smaller as in *tantula* and the elytral striæ line-like and more regularly punctured as in *delicata*. The elytra seem, however, to show a stronger iridescent sheen than in either *delicata* or *pusilla*.

Type: ♂. Florida.

Allotype: ♀. Florida, Marion Co. (Collection of H. C. Fall).

Paratypes: 1 ♂, 1 ♀.

Florida: "Fla.," 1 ♂; Gulfport, 1 ♀.

### ***Serica sculptilis* new species.**

♂. Length, 6.5-7 mm.; width, 3.75-4 mm. Color bay to dark chestnut, surface bare and shining, entirely without bloom or iridescence and nearly devoid of pubescence except for some erect, golden brown hairs on the submentum, anterior coxæ and femora, last sternite, pygidium and margins of pronotum and elytra.

Clypeus very broadly and feebly tumid just beyond the middle; appear-

ing distinctly though not strongly depressed just below the clypeal suture and before the anterior reflexed margin, and less so toward the sides; anterior and lateral margins less strongly and suddenly elevated than usual in the genus, and clypeal incisure poorly developed to obsolete; viewed perpendicularly the anterior elevated margin broadly and evenly curved at the middle, viewed at an angle from above straight; puncturation relatively coarse and much crowded, the punctures separated by about one third of their own diameter. Front with the punctures slightly coarser and less closely crowded; occipital region impunctate. Measurements of head: diameter of head through eyes, 16.5; distance between inner eye margins, 11; length of head on median line, 15; extreme width of anterior reflexed margin, 9; antennal club, 6; dorso-ventral diameter of eye, 5.3.

Pronotum but slightly convex, sides distinctly margined, only moderately arcuate and convergent from base to apex; surface rather strongly, closely and evenly punctured, the punctures a little more crowded toward the sides, but separated on the average by about their own diameters. Measurements of pronotum: width through posterior angles, 28.5; width through anterior angles, 17.6; length on median line, 16.

Elytra with the striæ shallow but distinctly lined, and each with three irregular rows of coarse punctures, confluent to separated by their own diameters, and encroaching upon the interspaces to their crests. Length of elytra, 5 mm.; greatest width, 3.75 mm.

Posterior coxal plates and sides of metasternum with moderately strong punctures, separated on the average by about their own diameters. Abdominal sternites, except the last, with fine, sparsely and irregularly placed punctures, and with the rows of ambulatorial setæ poorly developed; last sternite closely punctured.

The genital armature of the male (Pl. XIX) measures 1.7 mm. and is strongly characterized by its relatively thick, inflated basal portion and long, attenuated claspers.

♀. Differs from the male only by the usual secondary sexual characters, none of which are strongly marked.

Type: ♂. Camp Baldy, San Bernardino Co., California, June 14, 1917 (L. L. Muchmore).

Allotype: ♀. Mt. Wilson, California, June 18, 1903.

Paratypes: 7 ♂, 7 ♀.

California: "Cal.," Horn Collection, 1 ♂; Claremont, 2 ♂, 4 ♀; Ojai Valley, 2 ♂, 2 ♀; Mt. Wilson, 2 ♂, 1 ♀.

### ***Serica solita* new species.**

♂. Length, 8.2 mm.; width, 4.2 mm. Color dark auburn, subopaque, with traces of a metallic iridescence when viewed under a lens in shifting lights, but the iridescence and surface luster somewhat obscured by short, erect, ochraceous hairs.

Clypeus bare, plane or broadly and very feebly tumid at the middle of its apical third; anterior and lateral margins ~~strongly~~, though not abruptly, elevated; position of lateral incisure very faintly or not at all indicated; elevated margin viewed perpendicularly, moderately arcuate at the middle and very broadly and evenly rounded at the corners, viewed at an angle from above with both the middle and corners slightly more prominent, making the anterior margin appear slightly bisinuate; surface of clypeus with rather small, deep punctures, separated by about half their own diameters. Front with the punctures separated by one to two times their own diameters, and with a row of about 18 coarse, setigerous punctures following the nearly obsolete clypeal suture and inner eye margins. Eyes and antennal clubs rather small. Measurements of head: diameter of head through eyes, 20.3; distance between inner eye margins, 14; length of head on median line, 15; extreme width of anterior reflexed margin, 11; antennal club, 7.6; dorso-ventral diameter of eye, 6.5.

Pronotum distinctly convex, with sides strongly and almost evenly arcuate from base to apex, posterior angles very obtusely rounded; puncturation a little less strong and dense than on the head, the average distance between the punctures being from one to two times their own diameters; apical and lateral margins of pronotum with a row of erect setæ. Measurements of pronotum: greatest width, 35.3; width through anterior angles, 21.7; length on median line, 21.5.

Elytra with the striæ narrow and shallow, each with a somewhat confused double row of punctures; interspaces broadly and feebly convex, the second, fourth and sixth a little wider and more numerous punctate than the others; both the striæ and the wider interspaces bearing irregular rows of erect, ochraceous hairs. Length of elytra, 62, greatest width, 42.

Metasternum and posterior coxal plates moderately punctured, the punctures separated by about their own diameters. Abdominal sternites less strongly and closely punctured, the ambulatorial setæ poorly developed, scarcely distinguishable from the fine semi-recumbent sternal hairs. Thoracic sternum, basal portion of middle and front legs, and submentum fairly well clothed with rather long erect, ochraceous hairs.

Genital armature of male (Pl. XX) 2.5 mm. in length and considerably resembling that of *elongatula* Horn.

♀. Differs from the male in having slightly smaller eyes (6 instead of 6.5) and smaller antennal clubs (6 instead of 7.6). The under line of the abdomen more convex than in the male and the erect, ochraceous hairs slightly longer, more numerous and shaggy in appearance.

Type: ♂. Carmel, Monterey Co., California, June 18, 1918.

Allotype: ♀. Carmel, Monterey Co., California, June 16, 1918.

Paratypes: 99 ♂, 16 ♀.

California: "Calif.," 3 ♂; Carmel, 88 ♂, 9 ♀; Alameda Co., 6 ♂, 7 ♀; Monterey, 1 ♂; San Francisco, 1 ♂.

All specimens from Carmel collected by L. S. Slevin.

***Serica elongatula* Horn.**

*Serica elongatula* Horn, Trans. Amer. Ent. Soc., iii, p. 77, 1870.

♂. Length, 6.5 mm.; width, 3.3 mm. Color bay to chestnut, subopaque and faintly sericeous.

Clypeus not at all depressed, the anterior, reflexed margin distinctly but not suddenly elevated, the angle of elevation from the plane of the clypeus being about 45 degrees; anterior margin viewed perpendicularly only feebly arcuate medially, viewed at an angle from above slightly more prominent at the middle and sloping to the sides; angles broadly rounded, and lateral margins less strongly elevated than the anterior; clypeal incisure distinct but very shallow and obtuse; clypeal puncturation moderately strong, the punctures separated by about their own diameters. Front less densely and regularly punctate than the clypeus, occipital area often impunctate. Antennal club large, slightly exceeding the total length of the antenna. Eyes comparatively small. Measurements of head: diameter of head through eyes, 18; distance between the inner eye margins, 12.3; length of head on median line, 13; extreme width of clypeus in front of incisure, 10.3; antennal club, 9.4; dorso-ventral diameter of eye, 6.

Pronotum nearly twice as wide as long, very convex, slightly wider at the middle than at the base, with the margins strongly and nearly evenly arcuate when viewed from the side; posterior angles strongly rounded and anterior angles rectangular; surface with small, evenly distributed punctures, separated on the average by about twice their own diameters. Measurements of pronotum: width through posterior angles, 28; width through middle, 30; width through the anterior angles, 19; length on median line, 16. Scutellum subopaque, finely and quite evenly punctate, except for the shining and impunctate apex; length, 6.5; width, 7.

Elytral striæ distinct and line-like, each with a row of rather small, closely and irregularly placed punctures; interspaces sparsely punctate, nearly flat, the second, fourth and sixth slightly wider than the others. Length of elytra, 46; greatest width, 33.

Metasternum and posterior coxal plates, especially the latter, closely and rather coarsely punctate, abdomen finely and sparsely punctate. Under surface very sparsely clothed with rather long, fine, ochraceous-buff hairs, which become coarser, denser and much more conspicuous on the coxæ and femora of the front and middle legs.

The genital armature of the male (Pl. XXI) measures 1.8 mm.

Specimens examined: 6 ♂, California.

The drawings and above description are from a specimen labeled "Cal." "Horn Coll. H. 5683." The Horn collection contains four additional male specimens also labeled "Cal." There is, however, in the Le Conte collection a single male bearing the label "Owen's Valley, California. *Serica elongatula* Horn." Since the labels are

presumably in Dr. Horn's handwriting, and since this seems to be the only one of the original series of specimens bearing the exact data given in the original description, possibly it might with propriety be regarded as the holotype of the species in place of the one now so designated in the Horn collection. Through the courtesy of Dr. Banks the writer was permitted to mount the genital armature of this specimen and found it exactly like the armature here figured. Thanks are due to Dr. Skinner for the privilege of examining the specimens in the Horn collection.

*Elongatula* is not common in collections, in fact the only specimens known to the writer are those above mentioned. With several thousand specimens of *Serica* at hand, representing many species, it becomes evident that Dr. Horn's statement concerning *elongatula*: "Differs from all our species by its more elongate form, parallel sides, more transversely convex thorax and elytra," has no descriptive value, but to the contrary, may be responsible for many misdeterminations.

***Serica mixta* Le Conte.**

*Serica mixta* Le Conte, Journ. Acad. Nat. Sci., Phila., Ser. 2, vol. iii, p. 276, 1856.

♂. Length, 7.5 mm.; width, 4.25 mm. Color brownish testaceous (argus brown), surface somewhat opaque, dulled by a sericeous bloom, probably quite distinct in fresh material.

Clypeus level with the front, and unmodified, the anterior margin rather strongly elevated, the lateral margins scarcely less so, and not separated from the apical margin by an incisure, there being a scarcely discernible waver in the rim at the juncture of its apical and lateral parts; viewed perpendicularly the anterior, elevated margin only very slightly arcuate at the middle, with the corners very broadly rounded, viewed at an angle from above almost level; surface of clypeus shining, covered with distinct, moderate-sized punctures, separated by scarcely their own diameters. Clypeal suture obtusely angled, or nearly arcuate, at the middle, fine and not very conspicuous. Front opaque, a little less strongly, closely and evenly punctured than the clypeus. Antennal club of usual size, about as long as the combined length of the preceding antennal joints. Measurements of head: diameter of head through eyes, 21; distance between inner eye margins, 13; length of head on median line, 15; antennal club, 9; dorso-ventral diameter of eye, 7.

Pronotum not very convex, the punctures only moderately fine, rather evenly placed and separated by about their own diameters; posterior angles obtuse but fairly distinct, lateral margins moderately arcuate; near the

lateral margins and about three fifths of the way from the base, a small, slightly impressed area with a pigmented spot on its posterior side. Measurements of pronotum: width through posterior angles, 31; width through anterior angles, 22; length on median line, 17.6. Scutellum finely punctured, more closely so toward the sides; length, 7.6; width, 7.6.

Elytra with rather feebly impressed, line-like striae, each stria with a single slightly irregular row of rather small, but deep, setigerous punctures, separated by one and one half to two times their own diameters; the hairs pallid, inconspicuous, and probably semi-recumbent; the intervals feebly convex, with the second, fourth, and sixth slightly wider than those between, sparsely and very irregularly punctured, the punctures slightly finer than the stria punctures, and often close to them. Length of elytra, 55; width, 42.5.

Metasternum and posterior coxal plates, especially the latter, shining, and rather strongly punctured, the punctures separated by one to two times their own diameters. Abdominal sternites opaque, finely and indistinctly punctured, and with the usual, single, transverse rows of coarse, setigerous punctures. Under surface thinly clothed with semi-erect yellow hairs; the pubescence longer and denser on the anterior and middle legs and mesosternum.

Length of genital armature of male, 2.6 mm. (Pl. XXII). The membrane below the base of the claspers extends half way down the ventral surface of the stalk of the armature and is broadly divided by a median, tapering, chitinous process extending upward to nearly, or quite, even with the apex of the stalk. This important feature is indicated, though perhaps not very clearly, in the accompanying plate.

♀. Unknown.

Types: three males in the Le Conte collection, from San Diego, California, labeled "*mixta* 1," "*mixta* 2" and "*mixta* 3."

All three specimens were dissected, and type number two was used for the drawings and description here given. For the privilege of dissecting and studying these types the writer is greatly indebted to Dr. Banks.

*Mixta* is known to the writer only by the Le Conte types, although many specimens of California *Sericas* have been examined. Perhaps it is not a common species as has been supposed.

### ***Serica curvata* Le Conte.**

*Serica curvata* Le Conte, Journ. Acad. Nat. Sci., Phila., Ser. 2, iii, p. 276. 1856.

♂. Length, 7-10 mm.; width, 3.75-5.5 mm. Color varying from amber brown to a very dark auburn, surface somewhat shining, but not polished, and in the darker specimens showing distinct traces of a sericeous, metallic luster.

Clypeus with discal area nearly or quite level with the front, but slightly,

or sometimes not at all, tumid just below the middle. Margins of clypeus rather strongly but not abruptly elevated, the lateral margins nearly as prominent as the anterior, and separated from it by a poorly defined or obsolete notch; anterior portion of clypeus wider than usual, with prominent but strongly rounded corners, the reflexed margin viewed perpendicularly broadly and moderately arcuate at the middle, viewed at an angle from above nearly straight; puncturation of clypeus moderately strong and dense, the punctures separated by their own diameters or less. Front a little less regularly and closely punctured, and occipital area impunctate. Antennæ and eyes of average size. Measurements of head: diameter of head through eyes, 19; distance between inner eye margins, 11.5; length of head on median line, 13; extreme width of clypeus at the point of the nearly obsolete incisure, 6.5; antennal club, 7; dorso-ventral diameter of eye, 6.

Pronotum, transversely, more convex than usual, the sides evenly and rather strongly rounded from base to apex. Surface evenly covered with moderate-sized punctures, separated by one to two times their own diameters. A small piceous spot just above the side margins of the pronotum, distinct on pallid specimens, but discernible even on the darkest ones. Measurements of pronotum: greatest width just in front of the rounded posterior angles, 31; width through the obtuse anterior angles, 19; length on median line, 19. Scutellum punctured like the pronotum; length, 8; greatest width, 8.

Elytra with moderately impressed, line-like striae, each stria having a single row of rather small punctures, separated by about their own diameters. Puncturation of the intervals rather fine, sparse, and irregular, the punctures often more closely placed adjoining the lines of stria punctures. The intervals but slightly convex, sometimes nearly flat, the second, fourth and sixth a little wider than the others. Length of elytra, 54; greatest width, 37.

Metasternum, posterior coxal plates and hind femora with the usual moderately strong, closely placed punctures. Abdominal sternites very finely, sparsely punctured, and devoid of hair except for the rather conspicuous single rows of erect setæ.

Genital armature of male (Pl. XXIII) 2-3 mm. in length.

♀. Differs from the male in having slightly smaller antennæ, and the usual more robust form of the abdomen.

Specimens examined: 67 ♂, 20 ♀.

North Dakota: Morton Co., 1 ♂.

Nebraska: Monroe Canyon, Sioux Co., 11 ♂; Pine Ridge, Dawes Co., 2 ♂; "Valley of the Platte" (Nebraska?), 2 ♂, Le Conte's types.

Colorado: Durango, 1 ♂; Pagosa Springs, 1 ♂.

California: Mill Valley, Marin Co., 1 ♂.

Nevada: 5 ♂.

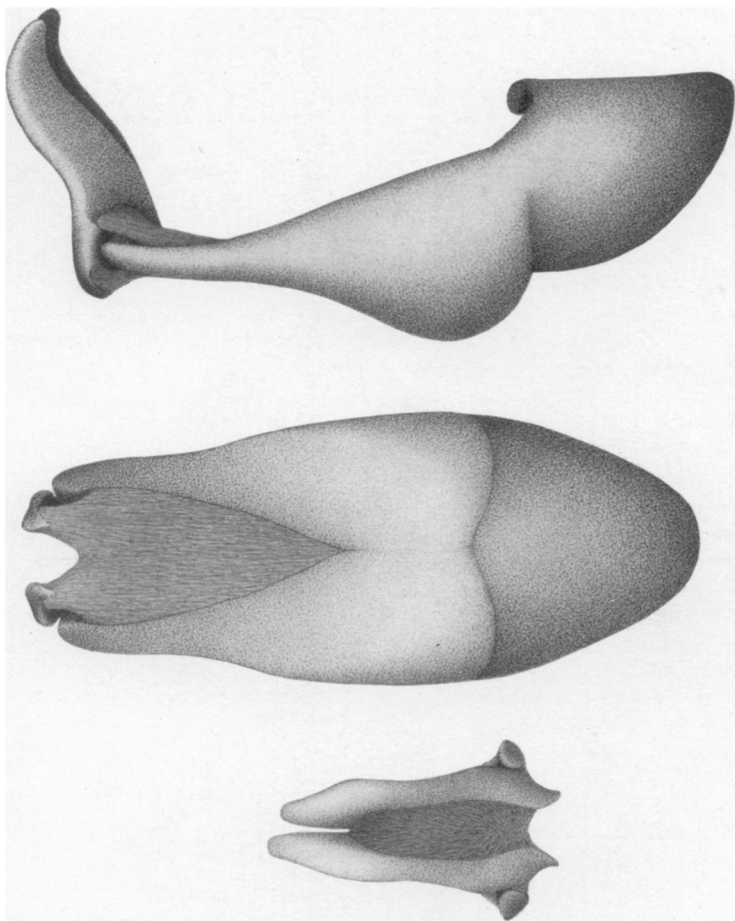
Utah: Eureka, 3 ♂, 7 ♀.

Montana: Havre, 5 ♂; Missoula, 1 ♂.

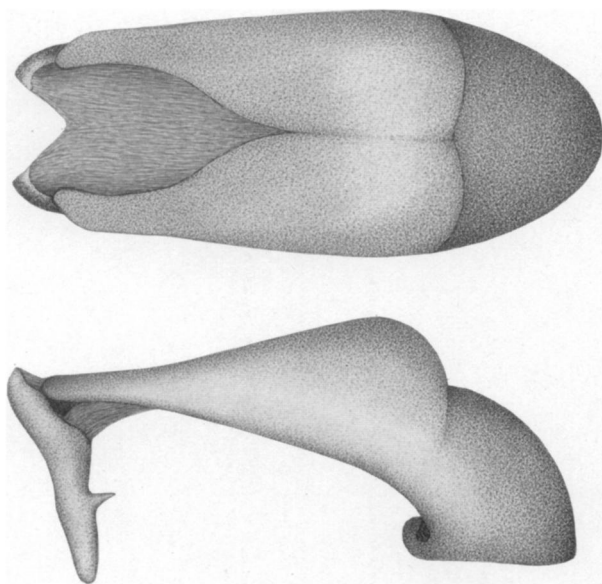
Idaho: 1 ♂; Coer d'Alene, 1 ♀.

Oregon: Hood River, 2 ♂.

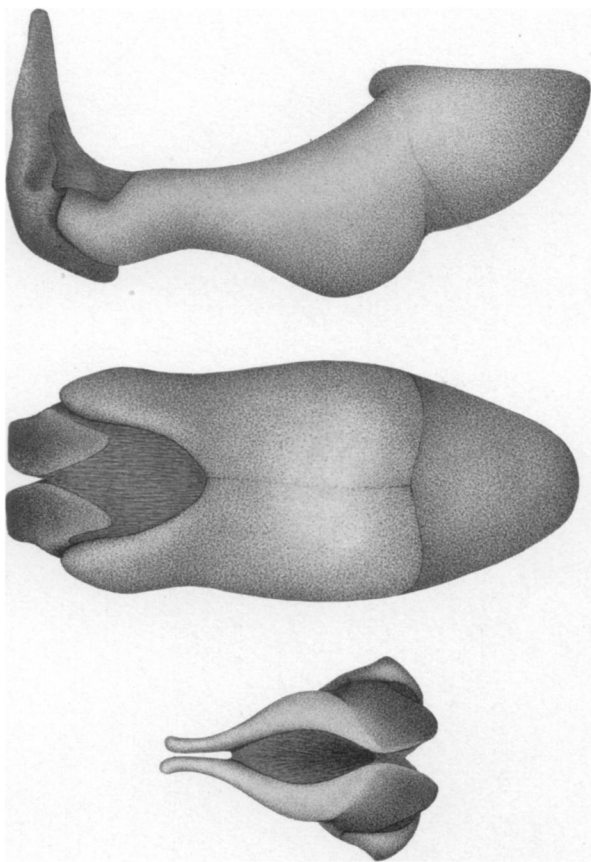




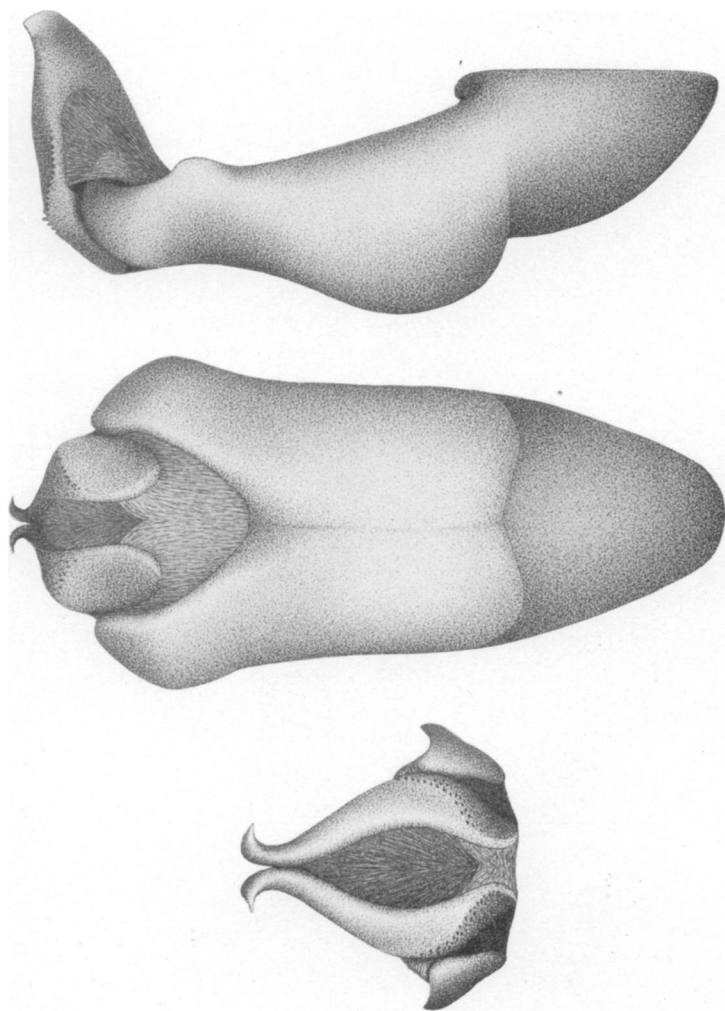
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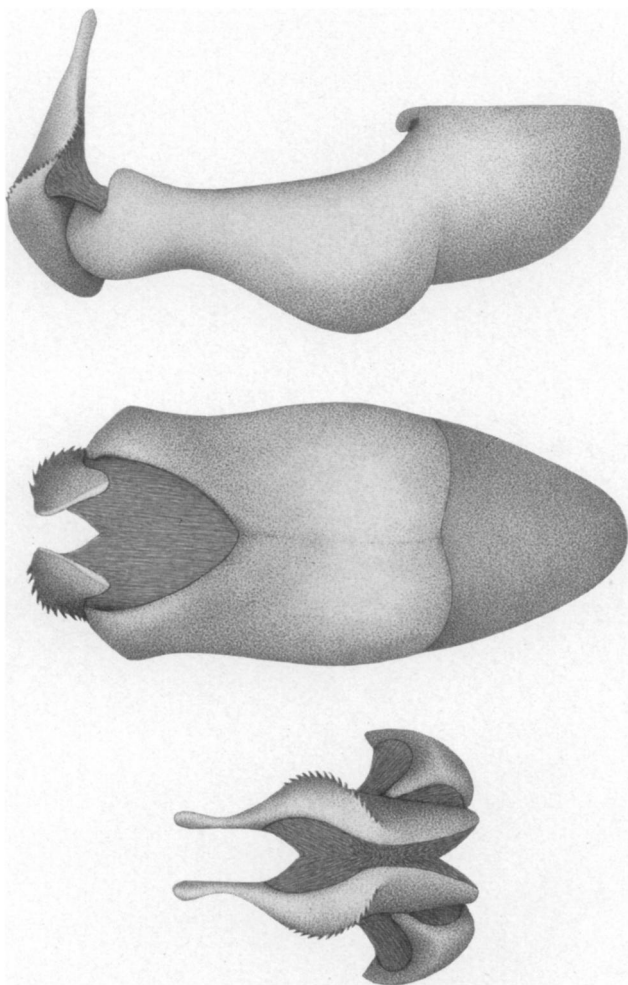
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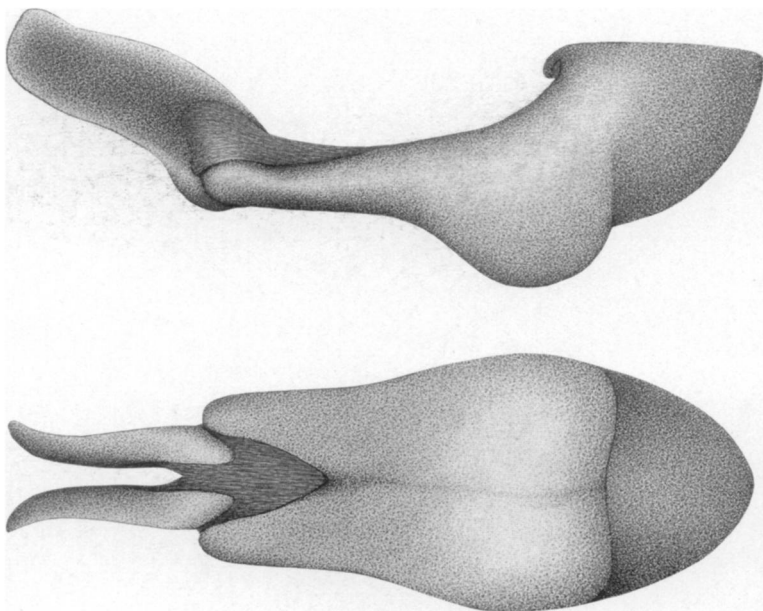
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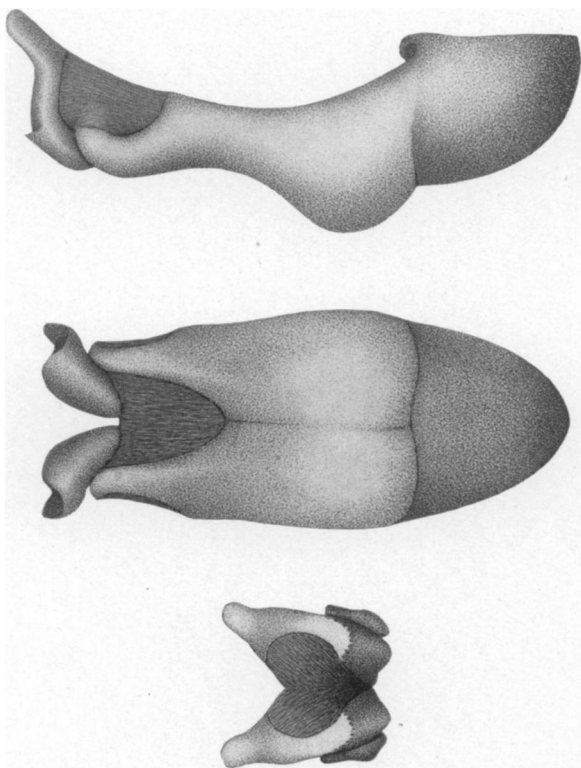
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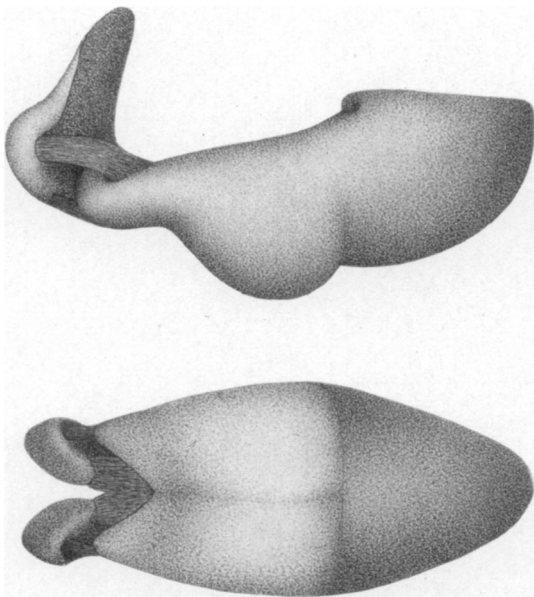
SERICA ASPERA, DAWSON.



SERICA DELICATA, DAWSON.

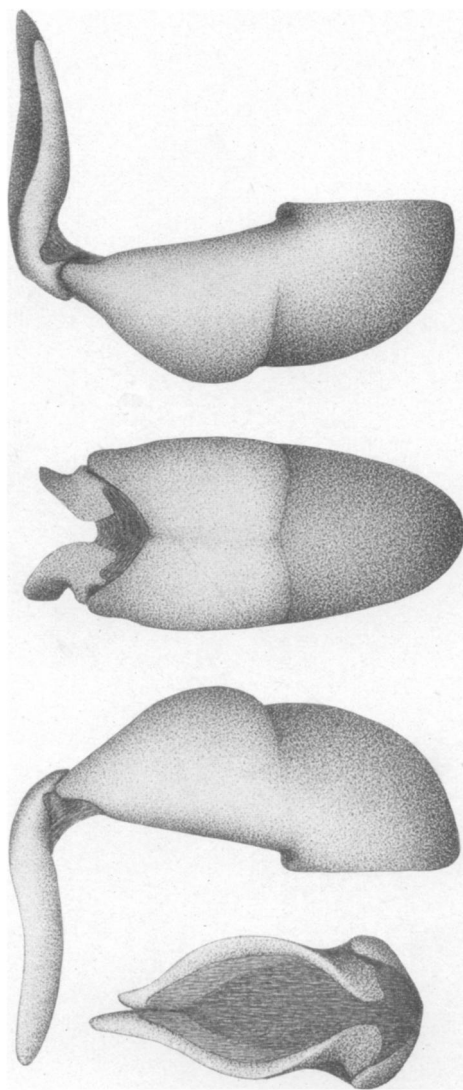


SERICA TANTULA, DAWSON.

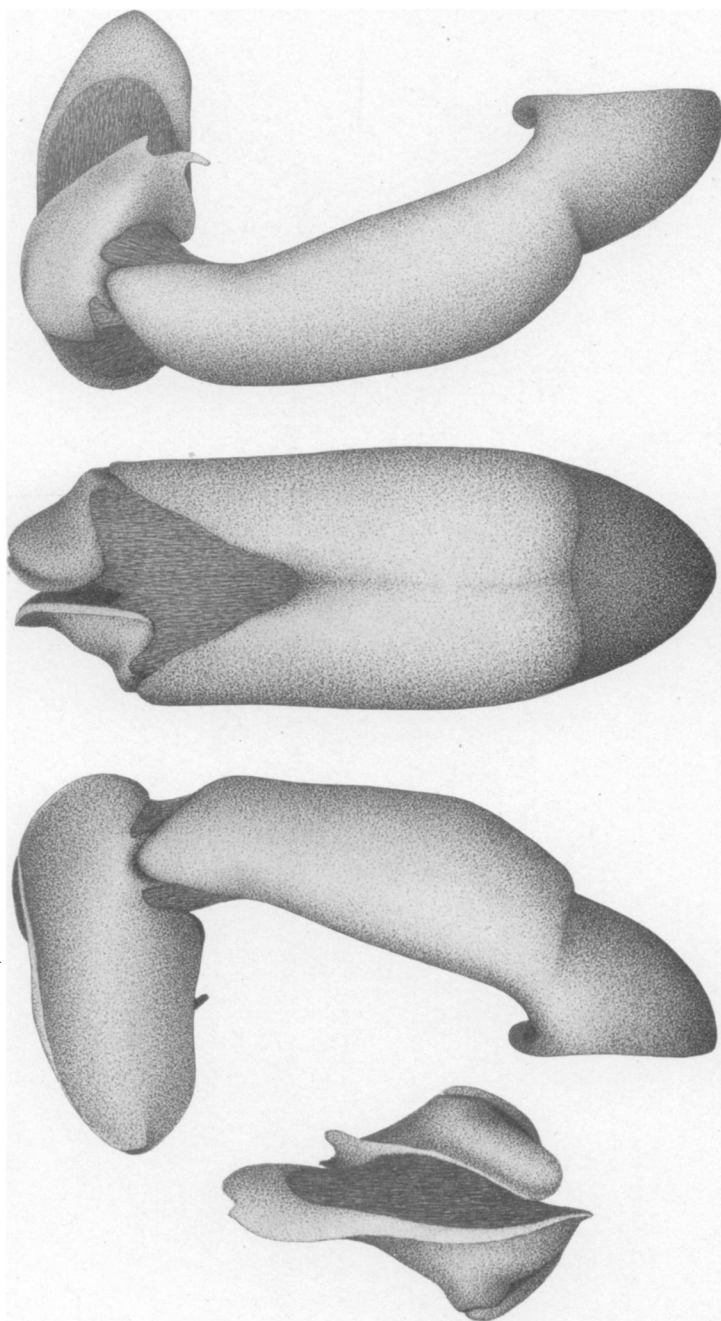


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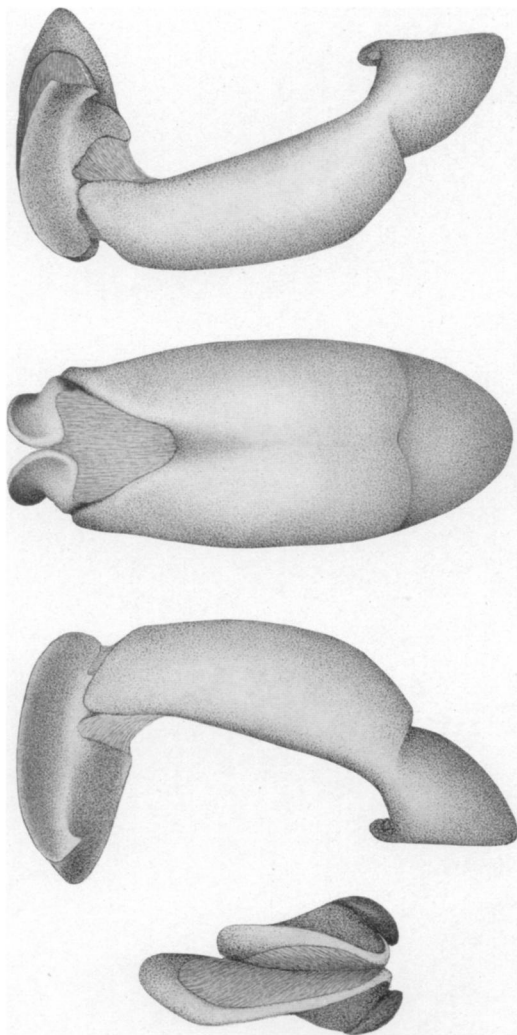




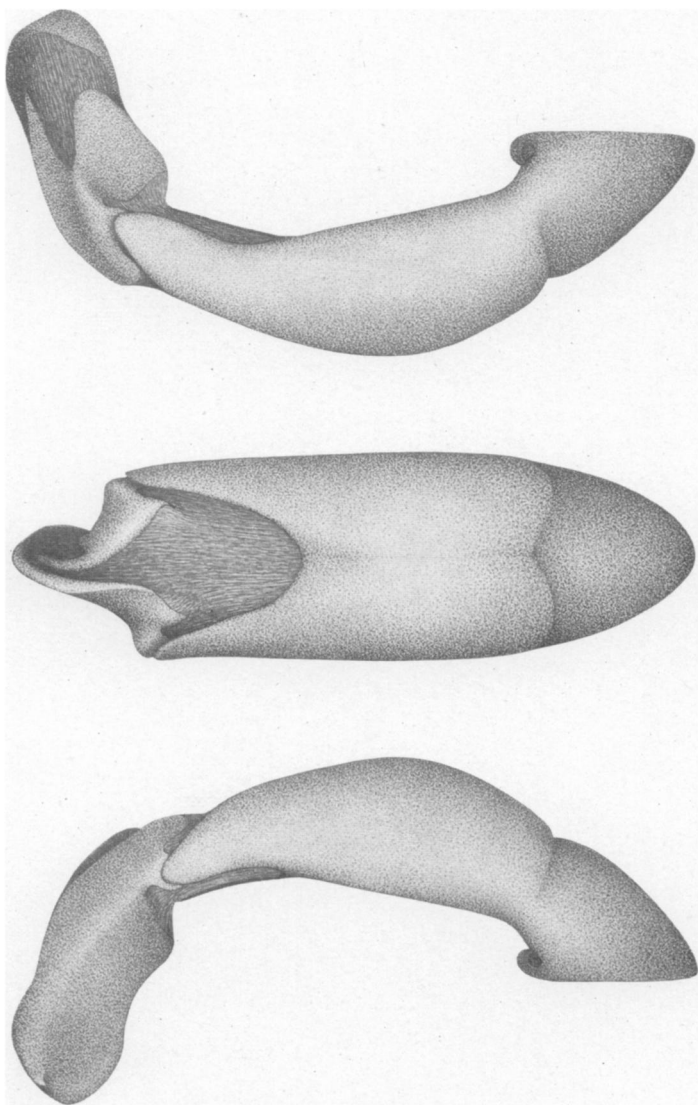
SERICA SCULPTILIS, DAWSON.



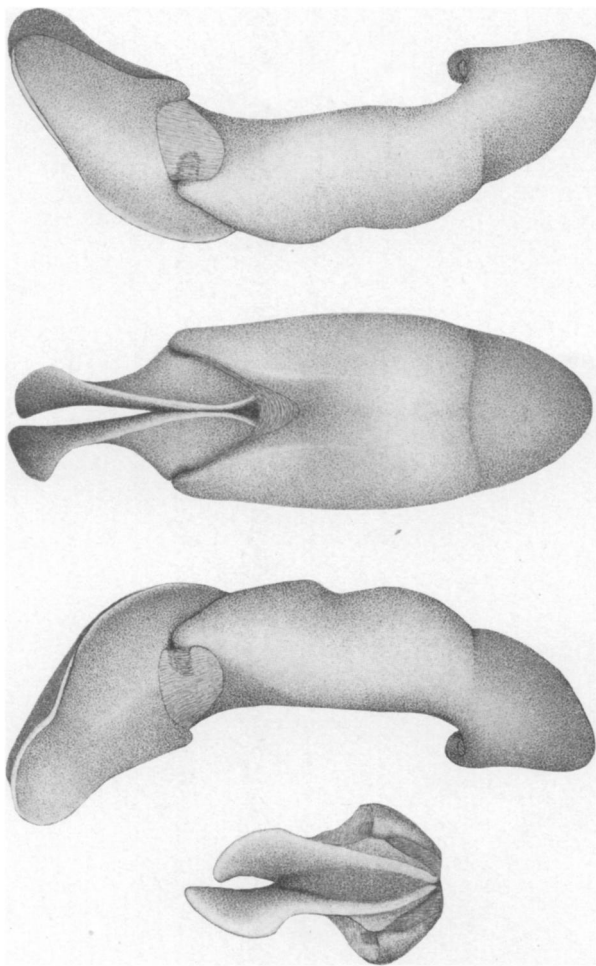
SERICA SOLITA, DAWSON.



SERICA ELONGATULA, HORN.



SERICA MIXTA, LECONTE.



SERICA CURVATA, LECONTE.

Washington: "Washington Territory," 7 ♂; Spokane Falls, 1 ♂; Pullman, 4 ♂, 1 ♀.

CANADA:

Quebec: Lanoraie, 1 ♀.

Manitoba: Onah, 8 ♂; Aweme, 1 ♂.

British Columbia: 1 ♂, 1 ♀; Nelson, 1 ♂; Golden, 1 ♂; Nanaimo, Vancouver's Island, 1 ♂, 1 ♀; Peachland, 3 ♂, 7 ♀; Buccaneer Bay, 2 ♂, 1 ♀.

North West Territory: 1 ♂.

*Curvata* becomes larger and darker, and even develops a slight iridescence in the specimens from more mountainous portions of its range. These larger, darker specimens closely resemble *serotina* Le Conte in appearance, and are usually so named in collections. The smaller, pallid specimens coming from the foothills and plains regions are not common in collections and have usually remained unnamed. With only a few specimens at hand the student would not, without the aid of the genital characters, correctly connect up the extremes of variation in size and color which occur in this species. The northwest Nebraska specimens (which presumably come from near the source of the type specimens) are quite typical. A dissected male bearing the data "Monroe Canyon, Sioux County, Nebraska, June 23, 1911 (R. W. Dawson)" was carefully matched up with the dissected holotype and used in preparing the drawings on the accompanying plate, and in taking the detailed measurements above given.

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## THE INSECTS AND PLANTS OF A MOIST WOODS ON THE PIEDMONT PLAIN OF NEW JERSEY.

BY HARRY B. WEISS AND ERDMAN WEST,

NEW BRUNSWICK, N. J.

The present paper deals with the results of a survey of the insects and plants found in a moist woods and adjoining thicket at Monmouth Junction, N. J. Collecting extended over the greater parts of 1920 and 1921 and during 1921 it took place at regular weekly intervals during the spring, summer and autumn. It is realized that collecting over two years is not exhaustive in so far as the insects are concerned.